

ADDENDUM

IMAGEBUFFER

USERS GUIDE

JAN. '86

PAGE 9, APPENDIX A:

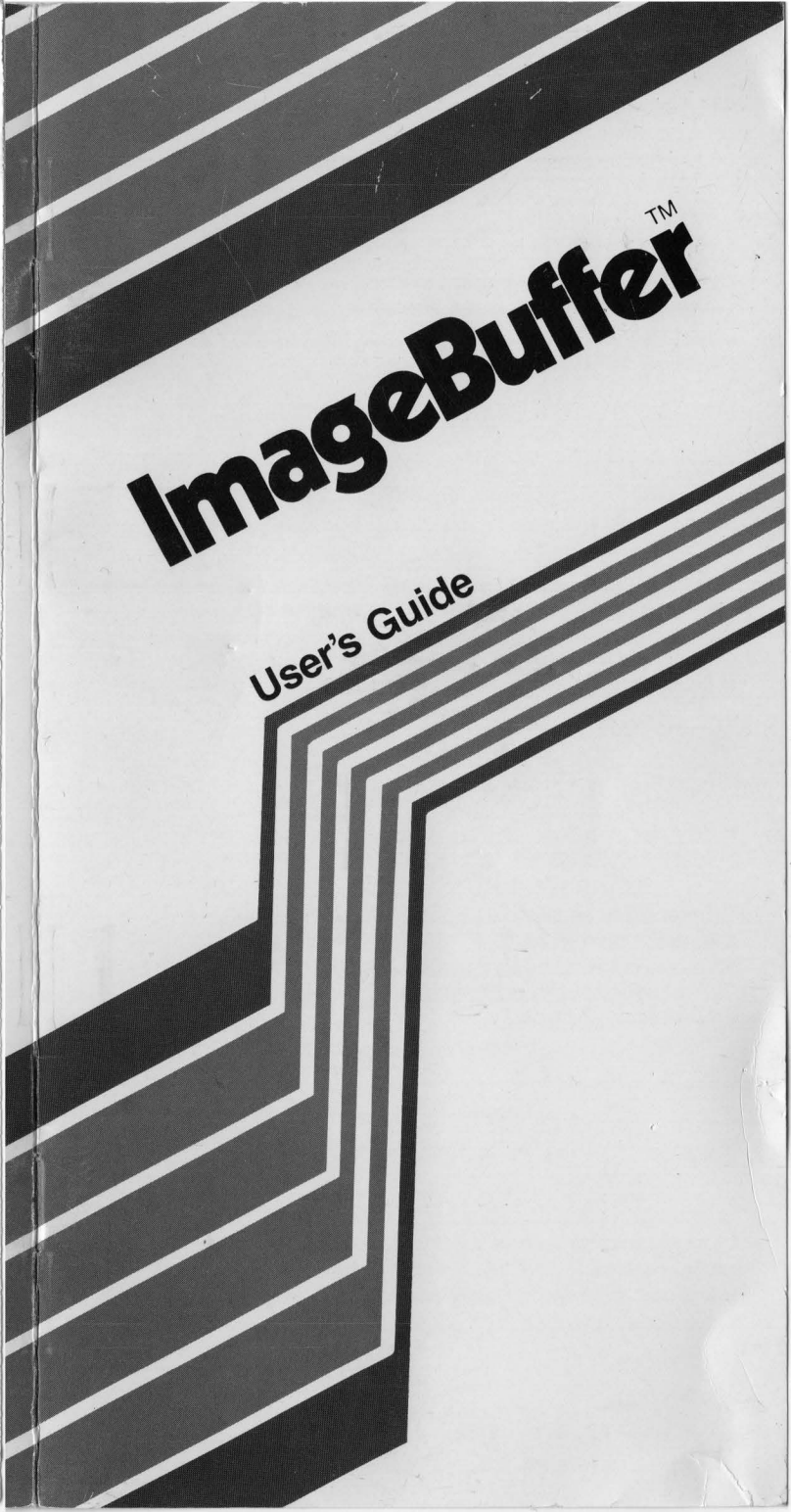
Available baud rates are 9600, 1200, 300 and 19.2K. There is no 91.2K baud rate.

PAGE 9, APPENDIX B: COPY COMMAND

In the "ESC C" copy command, leading zeros must be typed. For example:

```
PRINT CHR$(27);"C02" (FOR 2 COPIES)
PRINT CHR$(27);"C08" (FOR 8 COPIES)
PRINT CHR$(27);"C22" (FOR 22 COPIES)
```

Failure to type the leading zero will result in 10 times the desired number of copies being printed.

The cover of the ImageBuffer User's Guide features a series of parallel diagonal lines in black and white, creating a sense of depth and movement. The title "ImageBuffer" is prominently displayed in a large, bold, sans-serif font, with a small "TM" trademark symbol to its upper right. Below the title, the words "User's Guide" are written in a smaller, italicized font, following the angle of the lines.

ImageBufferTM

User's Guide

WARNING

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(German)

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(French)

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(Spanish)

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ImageBufferTM

User's Guide

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HIGHLIGHTS

The IMAGEBUFFER allows you to do the following tasks:

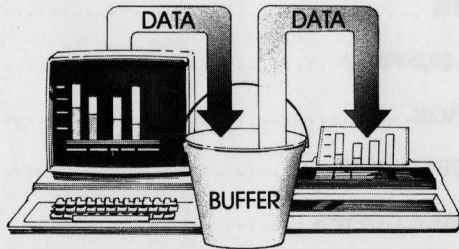
- Use the computer while the printer is printing.
- Send text documents up to 20 pages to the printer buffer (up to 40 pages in length for 128K.)
- Make up to 255 copies of a document or documents.

The IMAGEBUFFER can be installed in the Apple ImageWriter II printer and comes with 64K. By adding an Orange Micro 64K Buffer Expansion Kit, the buffer is expandable to 128K. For more on buffers, see the following section.

The IMAGEBUFFER is compatible with all Apple II series and Macintosh computers.

WHAT IS A BUFFER?

In simplest terms, a buffer is a bucket where information can be stored on a temporary basis. Information being sent to the printer is placed into a kind of intermediate storage tank, allowing the computer to do other jobs.



Without a buffer, the Apple computer can only send information as fast as the printer can print. Since most printers can only operate at 100-200 characters per second, the computer has to wait. The Apple is capable of sending up to 1000 characters per second, but is limited to a fraction of its output rate due to the printer's slower speed. This ties up the entire system.

With the buffer acting as a storage tank between the Apple and the ImageWriter II, the Apple is free to send information at a maximum speed without waiting for the printer to catch up. Therefore, while the printer is printing, you can use your computer to edit other documents, compute data, or any number of other jobs.

The IMAGEBUFFER permits your system to work at its full efficiency.

Apple, Macintosh and ImageWriter II are trademarks of Apple Computer Company.

INSTALLATION

Prior to installation of the IMAGEBUFFER, refer to your ImageWriter II printer manual for any special instructions regarding operating safety. Do not force the removal or movement of any physical component of the printer without first checking the printer manual for correct procedures.

Installation requires the use of a Phillips head screwdriver. The IMAGEBUFFER comes with a small plastic "tee" type standoff.

1. TURN OFF THE POWER TO YOUR APPLE AND IMAGEWRITER AND UNPLUG ALL POWER CONNECTIONS.

2. Remove the carriage cover from the ImageWriter II and place this aside.
3. Slide the print head to the far left and remove the ribbon cartridge.
4. Located on the front top of the printer is a panel held in place by two screws. Use a Phillips head screwdriver to loosen the screws until the panel comes free. The screws have catches to prevent their falling into the printer. Since the panel is attached, it is only necessary to fold it forward out of the way. Do not pull the cover away, as it might damage the front panel switches.

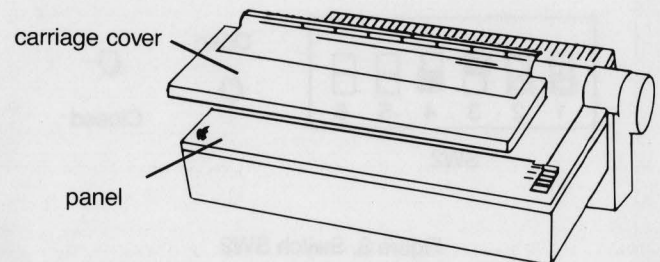


Figure 1. ImageWriter II

- Look down at the circuit board inside the ImageWriter II and notice a small $\frac{1}{8}$ " hole near the center.

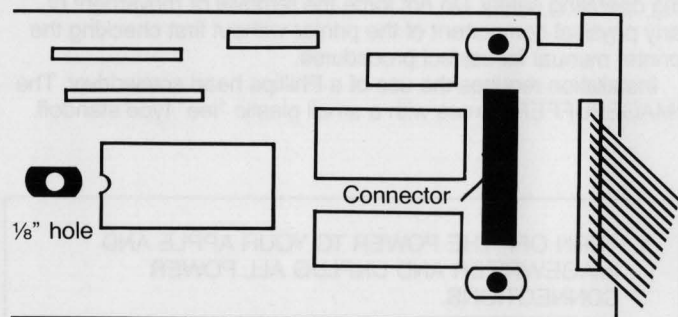


Figure 2. ImageWriter II Circuit Board

- Inserted in the IMAGEBUFFER is a small plastic "tee" type standoff. The purpose of this item is to prevent the movement of the IMAGEBUFFER and give it support once it is installed. Remove the standoff from the IMAGEBUFFER board. Hold the standoff so that you can insert the ball end into the $\frac{1}{8}$ " hole in the ImageWriter II circuit board. The standoff should snap into place.
- With the standoff installed, move the print head back to the right. Two switches should become visible. Locate the switch labeled SW2. The only switch handle to be changed on this switch is handle number 4. Change the number 4 handle setting from Open to Closed as shown in this illustration:

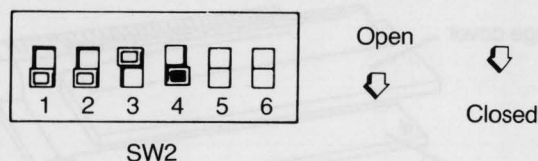


Figure 3. Switch SW2

- See Figure 2 for the location of the connector on the ImageWriter II circuit board. Hold the IMAGEBUFFER board so that you can read the label, or so that the connector underneath is on the right hand side. Notice the hole in the center of the IMAGEBUFFER. Carefully guide the hole over the end of the standoff. After the board has been guided onto the standoff, shift it so that the connector on the board drops into the connector well on the ImageWriter II. Press down firmly with a slight rocking motion until the IMAGEBUFFER is seated.
- When the IMAGEBUFFER has been installed, replace the panel by folding it back into place and re-tightening the Phillips head screws.
- Slide the print head back to the left and replace the ribbon cartridge.
- Replace the carriage cover. NOTE: Do not attempt to print without the carriage cover installed as the printer will not print. This cover must be snapped on for safety reasons.
- Reconnect the power supply to both the computer and the printer, and start up both.

NOTE: The IMAGEBUFFER is ready for normal operations immediately after installation. However, should a "RAM STATUS CHIP #" message print out upon initial printer power up, please see RAM Test on page 8.

NORMAL OPERATIONS

Once the IMAGEBUFFER is installed, it is ready for use as a print buffer. If you have 64K installed, you may store up to 20 pages of text in the buffer. The 128K version will hold up to 40 pages of text.

The IMAGEBUFFER requires no special commands to operate as a print buffer. However, after sending the document to be printed, you must wait for the blinking cursor to return to your computer screen in order to continue computer operations. If you are using a word processing or other applications program, watch for any indication that command of the program has been returned to you. This signals that the document has been completely transferred into the buffer. You may then resume use of the computer while the printer is printing.

The presence of other print buffers, RAM buffers or spoolers in the system will not affect the IMAGEBUFFER under normal operations but must be considered when making copies.

HOW TO MAKE COPIES

The IMAGEBUFFER is equipped with a special feature that allows you to save time in making multiple copies of any document, or documents. You can make up to 255 copies of any document(s) and still have the complete use of the computer while the printer is printing.

Briefly, making copies requires these steps:

1. Determine the size of the document(s).
2. Reset the buffer.
3. Send the document(s).
4. Wait for document(s) to be completely transferred to IMAGEBUFFER.
5. Issue copy command.

You should be aware that the presence of other print buffers, RAM buffers or spoolers in the system must be considered when making copies. This is more fully described under step 4.

1. **Determine the size of the document(s).** The IMAGEBUFFER allows you to make copies of one or more documents at the same time only if the size of the documents does not exceed the size of the IMAGEBUFFER's memory. For example, if your IMAGEBUFFER is 64K, you can only send one document whose size is less than 64K or a series of documents whose total is less than 64K. If the buffer is 128K, the same rule applies. (If you have other buffers in the system, do not include them in this process.) If document(s) are too large for the buffer, an error condition will result.
2. **Reset the buffer.** In order to start the copy process, you must clear the IMAGEBUFFER. To do this, turn off the ImageWriter II printer, wait a few seconds, and then turn it back on again. (Reset can also be performed from an Apple II on the program level. See Appendix B.)
3. **Send the document(s).** Either from the DOS or program level, issue the print command to send the document(s) to the printer. Please note that if you are making copies of more than one document, the IMAGEBUFFER will automatically hold all the information for the documents as well as keep them in the proper order.
4. **Wait for the document(s) to be completely transferred to IMAGEBUFFER.** This may seem obvious but in fact could be somewhat tricky. As long as you are dealing with the IMAGEBUFFER only, you can send the document(s) to the printer and when the cursor or program command returns to you, proceed to step 5. If you have other print buffers in the system (RAM buffers, spoolers, etc.), the return of the cursor or program command may not indicate that the document(s) are totally in the IMAGEBUFFER. The best rule is to wait for the documents to be completely printed, then go on to step 5.
5. **Issue copy command.** For each copy command issued, one copy will be printed by the IMAGEBUFFER. To issue one copy command, tap the ImageWriter II select button twice within a 1 1/2 second timespan. (In other words, take the ImageWriter II off-line and then put it back on-line within 1 1/2 seconds.) Press down on the select button, release, then press down on the

button again and release. Each time you tap the select button twice within a 1 1/2 second timespan, a copy will be made for the document(s) stored in the ImageWriter II buffer. You may make up to 255 copies from the document(s) stored in the buffer. (A copy command can also be issued from the program level. See Appendix B.)

While the printer is making copies, your computer is free to do other tasks. Do not attempt to send new documents to the printer while the copies are being made. For each new set of documents to be copied, the IMAGEBUFFER must again be cleared as shown in step 2.

Copy Error Condition

The most common error condition to result will be a partial or incomplete copy of the document(s) sent to the printer. This is caused by the document being too large for the buffer or the copy command being given before the document is completely received by the buffer. To recover from these errors, check the size of the document(s), then clear the buffer. Send the document(s) to the printer and wait until the printing has been completed before issuing any copy commands.

ADDING RAM CHIPS

Installation

The IMAGEBUFFER comes from the factory with a standard 64K RAM buffer. It may be expanded to 128K by adding two RAM chips. There is no provision on the buffer for increments of RAM other than 64K or 128K.

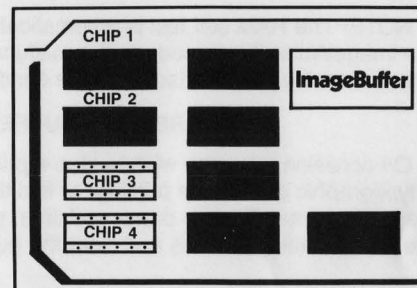
The type of RAM chip to install is a 256X1 Dynamic RAM chip. Orange Micro RAM Expansion Chip packages for the IMAGEBUFFER may be purchased from your local computer dealer.

RAM chip installation should be done prior to installing the IMAGEBUFFER into the printer. If the IMAGEBUFFER has already been installed, it should be removed when adding the RAM chips in order to prevent damage to any other printer components.

Looking at the IMAGEBUFFER board as shown in the illustration below, note that a RAM chip can be inserted into each of the two empty sockets.

IMAGEBUFFER

Sockets



When installing RAM chips, it is necessary to align pin 1 on the chip with pin 1 on the IMAGEBUFFER socket. Hold your buffer as shown in the illustration above. You will see that each RAM expansion socket has a notch silkscreened on the board at the end of the socket nearest pin #1. Now look at a chip from the RAM Expansion Package. Note that the chip has a notch (or dimple) at one corner that identifies pin 1 on the chip. **When the chip is placed into the socket, the notch on the chip must be next to the notch on the board.**

To install a RAM chip, position the chip pins into their corresponding socket holes and gently plug the chip into the socket. Look at all the pins to verify proper seating of the chip and that no pins have been bent or broken during installation.

RAM Test

Each time the printer is turned on, the IMAGEBUFFER performs its own automatic built-in self test that checks for any abnormal condition in the RAM chips. An abnormal condition may include a faulty chip, a chip installed upside down, or a chip with a bent pin.

If no abnormal condition exists, there will be no response from the printer. The message only prints if there is an error. If a problem occurs at any time with the RAM chips on the IMAGEBUFFER board, this message will print out on the printer immediately after power up:

RAM STATUS CHIP# 4 3 2 1

Each number on the message corresponds to a chip or socket number on the buffer. Depending on the IMAGEBUFFER version you are using, either a 1 or X will appear below the chip number. The number "1" below the the chip number indicates that a RAM chip is installed and in good condition. An "X" below the chip number indicates the absence of a RAM chip or an abnormal condition. Any abnormal condition must be corrected before the IMAGEBUFFER will continue to operate.

In this sample for a 128K buffer, all the chips are installed. However, the chip in socket 3 is faulty:

RAM STATUS CHIP# 4 3 2 1
1 X 1 1

NOTE: The RAM self test is automatically performed each time the ImageWriter II is turned on. If a malfunction occurs in any chip, the test will repeat itself until the condition is corrected.

RESET THE BUFFER

On occasion, you may wish to stop a printout. You may notice a typographic error in the printing, or find that you sent the wrong file to the printer. To save paper and time, you may wish to abort the entire printing process and clear the buffer.

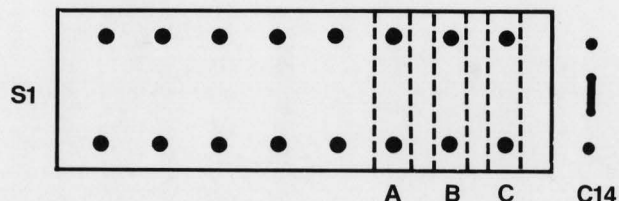
In order to clear the IMAGEBUFFER of unwanted data, you must reset the printer.

Turn off the ImageWriter II printer, wait a few seconds, then turn it back on again. This will flush the buffer of unwanted data.

APPENDIX A: CHANGING BAUD RATE

If for any reason you should need to change the IMAGEBUFFER's baud rate, jumpers can be added to the board at position S1 as shown below. X-ON/X-OFF Protocol is also selectable.

BAUD RATE	B	C
9600	OPEN	OPEN
91.2K	OPEN	JUMPER
1200	JUMPER	OPEN
300	JUMPER	JUMPER
PROTOCOL	A	
X-ON/X-OFF	JUMPER	
Hardware	OPEN	



APPENDIX B: MAKING COPIES FROM THE PROGRAM LEVEL

On any Apple II series computer (including Apple II, Apple II+, Apple IIe, and Apple IIc), the copy command can be issued at the DOS level with a print statement. This feature is not available on the Macintosh.

Copy commands can be issued using this sample format:

NOTE: Remarks made in parentheses () are for your information only and should not be typed. Nor should spaces be typed. Press the return key after each line.

PR #1
PRINT CHR\$(27);"J" (ESC J reset command)
(interrupt sequence to send documents to printer)
PR #1
PRINT CHR\$(27);"C55" (ESC C copy command)

The above sequence of commands will make 55 copies of the document(s) resident in the IMAGEBUFFER. If the slot containing the printer interface is other than PR #1, make the appropriate substitute. The number of copies is specified in the print statement, and can range up to 99.

See step 4 under "How to Make Copies" if you have a RAM buffer, spooler, or another buffer board as part of your system.



LIMITED WARRANTY

Every IMAGEBUFFER Interface is fully tested and quality checked before shipment and is warranted to be free from defects in materials and workmanship for a period of one year from date of purchase. During that time period, Orange Micro will at no charge repair or replace any defective unit returned to its Service Department in accordance with the instructions below.

Orange Micro disclaims any liability to users of the IMAGEBUFFER for consequential damages of any kind arising from or connected with the use of the IMAGEBUFFER Interface.

This warranty is void in cases of misuse, abuse, abnormal conditions of operation or attempts to alter or modify the function of a part or assembly.

This limited warranty is in lieu of all other warranties expressed or implied, and no representative or other person is authorized to represent or assume for Orange Micro any warranty liability beyond that set forth herein.

This warranty gives you specific legal rights, and you may also have additional rights which vary from state to state.

If problems do occur with an IMAGEBUFFER Interface, please notify Orange Micro of the model, serial number, date of purchase, and particular details. **Do not return the unit to Orange Micro until you have received authorization to do so.**

When returning the equipment, ship in the original carton or securely packed in a cardboard carton with at least two inches of cushioned packing material on all sides. Mark the package "FRAGILE" and ship via UPS, Parcel Post, or Air Freight, insured and prepaid. **COLLECT SHIPMENTS WILL BE REFUSED AND RETURNED. Enclose a clear description of the problems experienced, sample printouts if possible, proof of purchase date, return address, and preferred shipping method.**

The Warranty expressed above applies only to the IMAGEBUFFER Interfaces sold and used in the United States of America.

ACKNOWLEDGEMENT: The IMAGEBUFFER User's Guide was prepared by MICROTECH WRITERS of La Habra, California.

ImageBufferTM

User's Guide



1400 N. Lakeview Ave., Anaheim, CA 92807
(714) 779-2772

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Apple Interface Survey and Warranty Registration

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| <input type="checkbox"/> Serial Grappler + | <input type="checkbox"/> Bufferboard |
| <input type="checkbox"/> Grappler + | <input type="checkbox"/> HotLink |
| <input type="checkbox"/> Orange Interface | <input type="checkbox"/> Grappler C |
| <input type="checkbox"/> BufferPak | <input type="checkbox"/> ImageMate |
| <input type="checkbox"/> Buffered Grappler + | <input type="checkbox"/> ImageBuffer |
| <input type="checkbox"/> Other _____ | |

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Name _____

Address _____

Phone _____ Purchase Price _____

Printer Make/Model _____

Purchased From

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|---|--|
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| <input type="checkbox"/> Mail Order | <input type="checkbox"/> Dept. Store |
| <input type="checkbox"/> Other _____ | |

How Was Your Printer Purchased?

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Where Did You Learn of This Product?

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